

THE LICHEN FLORA OF QUEENSLAND,

WITH DESCRIPTIONS OF SPECIES;

BY JOHN SHIRLEY, B.Sc.

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PART III.

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SUB-TRIBE V.—Eulecanorei.

Thallus crustaceous, granular or smooth or leprose, rarely radiating. Apothecia with a thalline border; thalamium always naked, flat or tumid; paraphyses separate; spores 8 or more, seldom septate, colourless, rarely fuscous. Spermatogonia with arthrosterigmata, or with very long, curved, acicular spermatia, or with straight simple sterigmata.

VII.—LECANORA.

Characters as in the sub-tribe above.

* Spores numerous.—*Acraspora*. *Fr.*

1. *L. vitellina*, *Ach.*

Thallus pale greenish yellow, indeterminate, leprose, granulated, granules minute, crenulate or crenate or sublobate or conglomerate; apothecia clustered, sessile, tawny yellow,

Sy. plane, at length convex and brownish; thalline margin elevated, entire or crenate; spores numerous, colourless, oblong, simple or subpolari-bilocular or obsoletely uniseptate.

Hab.—Moggill, on old fences by the ferry.

** Spores 8, simple, colourless, not pertusarioid.

2] *L. subfusca*, *L.*

Thallus effuse, continuous, crustaceous to leprose-pulverulent, smooth, rimulose, granulate, verrucose, rugose or diffract,

whitish or cinerascens; hypothallus white. Apothecia pale or dark-brown or black, often pruinose, plano-convex; epithecium red-brown; margin persistent, tumid, entire or crenulate; thecæ short; spores oval or ellipsoid, colourless, Sn. simple or double walled, $\cdot 007$ — $\cdot 012$ x $\cdot 003$ — $\cdot 007$ m.m.; paraphyses slender, delicate; hym. gel. with I. bluish then violet. Spermagonia with large easily distinguished ostiola; sterigmata and spermatia of various forms; stylospores septate.

Hab.—Common on rocks and trees.

v. *coilocarpa*, *Ach.*

This form, common on rocks along the Brisbane River, is K. distinguished by its thin, unequal or granulate-rugose thallus, and its fuscous black or nigrescent apothecia, with entire margins.

v. *chlarona*, *Ach.*, is also common and usually corticolous, its thin, determinate thallus, and flat or sub-convex apothecia,

Sn. with sub-entire or crenulate margins, separate it from other varieties.

3. *L. albella*, *Pers.*

Thallus white, silvery, determinate, thin, leprose or membranaceous, continuous, smooth; apothecia sessile, scattered,

M. concave or plane, pale or flesh-coloured, cæsiopruinose or naked; margin thin, entire or wavy; spores 8, colourless, ellipsoid, simple; paraphyses thick, free.

Hab.—On trees, Toowoomba.

Syn.—*L. subfusca* v. *albella*, *Fries.*

4. *L. plumosa*, *Mull. Arg.*

Thallus suborbicular, thin, ashy-green, as if formed by pressure from small subcontiguous granules, bordered by a broad, snow-white hypothalline zone, which is closely plumose-fimbriate, at a later period ochraceo-rubescens. Apothecia thick, few, appressed, $\cdot 5$ — $\cdot 75$ m.m., small, plane,

M. pallid and nude ; with thin, pallid or albescent, and sub-crenate margin ; epithecium olive-brown ; hypothecium hyaline ; spores $\cdot 007$ — $\cdot 01$ x $\cdot 005$ — $\cdot 006$ m.m.

Hab—Toowoomba, on rocks.

Lich. Beit. von Dr. Müller. Sep.—Ab. aus. Flora XVI. 2.

5. *L. umbrina*, *Ehrb.*

Thallus nearly obliterated, showing patches of the olive-brown hypothallus, diffuse : apothecia fuscous or fusconigricant, small, caesio-suffused, thalline margin white, subcrenulate ; spores variable, simple or with one or more

Sn. nuclei or uniseptate, margined in maturity, ellipsoid or oblong or pyriform or oval, $\cdot 006$ — $\cdot 008$ x $\cdot 002$ — $\cdot 004$ m.m. ; paraphyses articulate.

Hab.—On rocks, Mt. Perry.

6. *L. pulverata*, *Stirton.*

Thallus pallid or pale blue-grey, thin, with a fine areolate network, here and there minutely granular (K—C—) ; apothecia sessile (width 8—1·6 m.m.), white or pale golden yellow, thickly white frosted, somewhat concave then flat, surrounded by a rather prominent crenulate excipulum ;

Sn. epithecium C— ; spores 8, colourless, ellipsoid, simple, $\cdot 009$ — $\cdot 012$ x $\cdot 006$ — $\cdot 0075$ m.m. ; paraphyses slender, with apices citrine tinged ; hypothecium colourless. Hym. gel. with I bluish then dull. This lichen seems to lie between *L. albella* and *L. galactina*.

Hab.—Brisbane, on bark.

Dr. Stirton in Proc. Roy. Soc. Vict., Sept., 1880.

7. *L. conizæa*, *Nyl.* (*Ach.*)

Thallus albido-flavescent, finely granulate-pulverulent ; apothecia pale or carneo-pallid, thalline margin elevate,

M subentire, pulverulent ; spores 8, colourless, ellipsoid, simple, $\cdot 013$ x $\cdot 004$; hypothecium whitish ; paraphyses separating with difficulty, slender, apices brownish.

Syn.—*L. varia* v. *conizæa* *Ach.*

8. *L. atra*, *Huds.*

Thallus thin, white, cracked into small irregular plates, determinate, bordered by a broad, distinct, black hypothalline zone ; apothecia to 1·6 m.m. in diameter, sometimes two or

- K three united into one ; disk dull black, oval or circular or irregular, within black ; margin white, elevate, thin above, entire, flexuose ; spores ellipsoid, rarely slightly curved, grumous or pellucid, $\cdot 006$ — $\cdot 01$ x $\cdot 003$ — $\cdot 004$ m.m. ; hypothecium in upper part cerasine-fuscous, spermagonia black, conoid or papilliform, arthrosterigmata 05 m.m. long ; spermata straight ; stylospores coloured.

Hab.—On rocks, Helidon.

Sy. v. *virens*, *Mull. Arg.*—On bark, Mt. Perry.

v. *immarginata*, *C. K.*

Thallus white, tuberculose. Apothecia black, innate, flat, naked ; hymenium violet-black, thick, rising from the thallus and with attenuated circumference ; no proper excipulum ;

- K. spores $\cdot 009$ x $\cdot 0075$, oval-ellipsoid, colourless, double-walled. Distinguished from forms of *L. subfusca* by the apothecia being black *ab initio*.

Hab.—On trunks of trees, Mt. Perry.

Dr. Knight in Syn. Queen. Fl. 2nd Sup.

9. *L. pinguis* *Tuck.*

Thallus thinly crustaceous, rough and granular, whitish or cinerascens or ashy-green. Apothecia small, numerous, crowded, $\cdot 25$ — $\cdot 35$ m.m., at first showing only the white marginal ring, then revealing the reddish-brown or fleshy-

- L. brown disk ; margin finely crenulate ; thecæ clavate-cylindrical, 8-spored, contents 1-seriate ; spores simple, pellucid, $\cdot 006$ — $\cdot 008$ x $\cdot 002$ — $\cdot 004$ m.m. ; paraphyses not separating.

Hab.—Unrecorded.

10. *L. Queenslandiæ* *C. K.*

Thallus sordid white or dull flavescent, granular in small rounded granules, resembling the verrucæ of a *Pertusaria*,

the prominences separated by a fine areolate network, surface irregular. Apothecia elevate, very numerous in the central area, $\cdot 7$ — $\cdot 9$ m.m. ; disk waxy, pale-red ; margin crenulate from the earliest stages, thickish, thalline, rosary-shaped under the lens ; spores simple, pellucid, oval, $\cdot 005$ — $\cdot 008$ x $\cdot 002$ — $\cdot 0035$ m.m.

Hab.—Mt. Perry on bark.

Very closely approximating to *L. pinguis*.

11. *L. soreidiifera* *Fee.*

Thallus cinereo-flavescent and thickly granulosa, granules somewhat gibbose—irregular. Apothecia from small and

M. regular to 1 m.m. and plicate-angulose ; margin entire or plicate ; disk flat, nude ; spores 8, simple, hyaline, $\cdot 012$ x $\cdot 006$ m.m. Near *L. granulosa* *Mull. Arg.*

Hab.—Unrecorded.

12. *L. melanommata*, *C.K.*

Thallus from very pale cinereous to white, minutely areolate, circumference subeffigurate, areolæ flat, variously angled, thin, smooth, discrete ; hypothallus black, laid bare between the areolæ. Apothecia very small, $\cdot 27$ m.m. in diameter or less, black, one or rarely two immersed in each areola ; disk rising to the surface of the thallus, immarginate, no proper excipulum ; hypothecium thick, colourless ; paraphyses slender, not discrete, with rigrescent apices ; spores ellipsoid, colourless, $\cdot 01$ x $\cdot 007$ m.m.

K

Hab.—Mt. Perry on rocks.

13. *L. lævissima*, *C.K.*

Thallus pale grey with slight reddish tinge (perhaps an accidental discoloration), smooth, continuous, very faintly reticulate-rimulose. Apothecia lecideine in appearance, small, innate, level with the surface, the only margin being that portion of the thallus cut off between the disk and the surrounding chink. Spores simple, colourless, oval-oblong,

K

very regular in size and shape, $\cdot 009$ — $\cdot 011$ x $\cdot 003$ — $\cdot 004$ m.m. Differs from *L. melanommata* in the thallus being almost continuous, and in the narrower spores.

Hab.—Mt. Perry on rocks.

14. *L. sordida*, *Fries.*

Thallus continuous, fissure cracked in flat tile-like divisions, whitish or cinereous, with white hypothallus. Apothecia flesh-coloured or light brown or black.

Syn.—*Zeora sordida*, *Pers* ; *Parmelia sordida*, *Fr* ; *Lecanora rimosa*, *Schaer.*

Hab.—On stones and rocks.

*** Spores 8, uniseptate, brown—*Rinodina*, *Fr.*

15. *L. continua*, *C.K.*

Thallus thin, sulphur-coloured, smooth, continuous or indistinctly reticulate-rimulose, determinate, bordered by a broad, distinct, dark-brown hypothalline zone. Apothecia small $\cdot 2$ — $\cdot 5$ m.m., immersed ; disk pale red to fuscous, plane ; margin fine, distinct, thalline, very slightly raised ; spores brownish, uniseptate, ovate-oblong, $\cdot 008$ — $\cdot 009$ x $\cdot 003$ — $\cdot 0036$ m.

Hab.—On rocks and stones, rising from the bed of Ithaca Creek, Taylor's Range.

16. *L. thiomela* *Nyl.*

Thallus sulphur yellow, thin, granulate or unqually subgranulate ; apothecia black or blackish, usually medium or small, bordered by a subentire or slightly crenulate thalline margin ; spores 8, brown, uniseptate $\cdot 023$ — $\cdot 03$ x $\cdot 014$ — $\cdot 015$ m.m. ; paraphyses usually of medium thickness ; epithecium (appearing as a thin lamina) sordid yellow ; hyp. thecium colourless. Gel. hym with iodine caerulescent. Allied to *Lecidea lepida* *Nyl.* of Brazil, but differing in the granulate thallus and separating paraphyses.

Dr. Nyl. Lich. Nov. Zeal. p. 252

Hab.—Helidon, on rocks.

17. *L. exigua* Ach.

Thallus orbicular, granulated, whitish ash-coloured, thin, unequal, sub-effuse. Apothecia clustered, with a thin sometimes crenulate border, black brown when moist, small. Spores brown, 1-septate, ellipsoid; spermagonia conoid; arthrosterigmata with straight spermatia of various sizes.

Hab.—On trees and rails.

Syn.—*L. sophodes* v. *exigua*; *L. atra* v. *exigua* Schaer.; *Psora exigua* Hepp.; *Rinodina metabolica* v. *exigua* Kærb.; *Rinodina exigua* Mass.

* * Spores 8, acicular, polyseptate—*Hæmatomma* Fr.

18. *L. punicea* Ach.

Thallus smooth, not shining, determinate, leprose, whitish or grey or glaucous, bordered with black. Apothecia numerous, crowded, in lines or in fours, or partly confluent and stellate; disk bright red, flat, or when old convex, appearing as if simply embedded in the thallus; margins indistinct, thin, white, finally crenulate; spores variable in size and shape, Sn. 9-polyseptate, fusiform-acicular, curved or sometimes twisted, & L. $\cdot 06 \times \cdot 0035$ — $\cdot 005$ m.m.; paraphyses with tips obscured by brownish-red colouring matter. Near *L. hæmatomma*. Dr. Knight in lit. F.M.B. says identical with *L. Babbingtonii*.

Hab.—Common on bark of trees.

Syn.—*Lecania punicea*, Mull. Arg.

19. *L. Babbingtonii*, Mass.

Thallus pale grey with a greenish shade, roughened over with minute papillæ, leprose; apothecia raised; disk flat, bright light red; margins white, obscured in mature forms; asci saccate or oblong; spores linear, curved or subarcuate. K. $\cdot 029$ — $035 \times \cdot 0025$ — $\cdot 004$ m.m., 5-septate, paraphyses not readily separating, apices minutely granulose, not dilated.

Hab.—Common on bark of trees in Brisbane scrubs.

* * * Spores pertusarioid—*Lecanorastrum*, *Mull. Arg.*

20. *L. parella*, *Ach.*

Thallus determinate, leprose to crustaceous, rimose-diffract or areolate-verrucose, sordid white or ashy-grey. Apothecia numerous, crowded, often angulose-diffract; disk plane or concave, dusky testaceous, coarsely albo-granulate; margin tumid, thick, often radiato-crenulate or verrucose; spores 6—8, large, $\cdot 05$ — $\cdot 06 \times \cdot 02$ m.m., double-walled,

Sn. colourless, simple; paraphyses indistinct, very delicate, without coloured or clavate heads. Spermagonia show as minute yellow spots, sterigmata linear and simple, or slightly ramose, with acrogenous spermatia.

Hab.—Common.

Syn.—*Pertusaria parella*, *Mull. Arg.*

v. *phlæoleuca*, *Nyl.*

Thallus almost white, very thin, and in this differing from the type. Apothecia smaller than the normal form; spores

Sn. $\cdot 038$ — $\cdot 05 \times \cdot 022$ — $\cdot 025$ m.m.

Hab.—On bark of apple trees, Hocking's Nursery.

21. *L. pallescens*, *L.*

Thallus white or cinerascens, frequently isidioid or tuberculose-rugose, membranaceous or subcartilagineous or tartareous, when membranaceous rimose or areolate-verrucose,

K. when tartareous friable or mealy. Apothecia pale carneous,

Sn. white pruinose; margin white, thick, tumid, entire, smooth, truly thalline, including gonidia.

Hab.—Mt. Perry.

Syn.—*Pertusaria pallescens*.

22. *L. subundulata*, *C. K.*

Thallus a beautiful pearly white, suffused with pink pruina, surface even, finely rimulose. Apothecia not crowded, large; disk flat, pink-pruinose; margin thick, rounded, ring-like,

K. later on undulate and involute. Theca clavate-cylindrical

or ovate ; spores 1—2 seriate, simple, colourless, $\cdot 009$ — $\cdot 015$ x $\cdot 004$ — $\cdot 006$ m.m.

Hab.—Mt. Perry, on bark.

23. *L. tartarea*, *L.*

Thallus white glaucescent, membranaceous to tartareous, rimulose, granular, areolate-tuberculose. Apothecia large, scattered, very irregular in form ; disk rugulose, convex, at length plane or tumid, reddish or brownish ; margin tumid, often flexuose, paler ; spores 8, oblong-ellipsoid, simple, colourless or sub-granular, resembling those of *L. parella* but

L larger. Spermagonia concolorous, irregular, wart-like ; ostiola large, brown, furnished with arthrosterigmata.

Hab.—Common.

VIII — *Callopisma*, *De Not.*

Thallus uniform, crustaceous, not squamulose or foliaceous, grey or yellow. Apothecia scattered, usually yellow or orange. Spores simple or polari-bilocular.

1. *C. cinnabarinum*, *Ach.* (*Mull. Arg.*)

Thallus brick-red to orange, often in large patches, crustaceous, moderately thick, rimulose-areolate, subverrucose ; areolæ plane, smooth, within flavescent ; margins when moistened appear crenate ; hypothallus black, sparse. Apothecia (resembling those of the sub-genus *Aspicilia*), minute, at length exserted, sub-convex, pallid citrine, margin sub-entire, base wanting. Spores small, simple, colourless, oblong-ellipsoid, $\cdot 008$ — $\cdot 001$ x $\cdot 003$ — $\cdot 005$ m.m.

Syn.—*Amphiloma Debanense*, *Baggl.*, *Lecidea* (*Biatora*) *cinnabarina*, *Somm.*, *Lecanora cinnabarina*, *Ach.*, *Callopisma capense*, *Mass.*, *Urceolaria tesellata*, *Tayl.*

Hab.—On rocks, Ipswich, Helidon and Rosewood.

2. *C. aurantiacum*, *Lghtf.*

Thallus citrine-yellow or flavescent, granulate, leprose or tartareous, rugose and rimose ; hypothallus white. Apoth-

M ecia golden or orange-coloured, biatorine, sessile, rather convex, when young crowned by the hypothallus, finally shining, subglobose, or crowded and angular; margin obtuse, pale yellow, undulate; spores variable, ellipsoid, at times subglobose, normally polari-bilocular, with or without an axial septum, $\cdot 008$ — $\cdot 012$ x $\cdot 005$ — $\cdot 007$ m.m. Spermagonia orange-yellow or red; sterigmata of numerous spherical or sub-cubical cells.

Hab.—Stanthorpe and Toowoomba on rocks; v. *erythrellum Ach.* found on basalt at Mt. Perry and Toowoomba, has an areolate-diffract thallus, and dark orange apothecia, almost immarginate.

3. *C. sanguinolentum*, *Krph.*

M. *Syn.*—*Lecidea russula*, *Ach.*

SUB-TRIBE VII.—*Pertusariei*.

Characters as in the genus below.

IX.—*PERTUSARIA*, *D.C.*

Thallus crustaceous or cartilaginous-membranaceous, continuous, irregularly warted or nearly smooth. Gonidia as in *Lecanora*. Apothecia verruciform, normally covered by a cortical layer of thallus, enclosing one or several waxy-gelatinous nuclei, enveloped in pale, membranaceous, thalline perithecia; ostiola usually depressed; spores 1-8, ellipsoid, large, with thick spore coat, simple. Spermata acicular. Paraphyses usually intricate-ramose. Differs from *Lecanora* in the clathrate-connected paraphyses, and the spore membrane strongly stratose-incrassate.

* *Lecanorastrum*, *Mull. Arg.*

Disk of apothecia disclosed as in *Lecanora*.

1. *P. velata*, *Turn.*

Thallus milk-white or whitish, smooth or rugose-unequal, rimulose, determinate, radiato-rugose or plicate towards the

circumference; verrucæ small, depressed, concolorous; apothecia pale, plane, lecanorine; disk carneous or rosy; spores solitary, ellipsoid or oblong-ellipsoid, broadly margined, endospore pale-yellow, $\cdot 18$ — $\cdot 22$ x $\cdot 07$ — $\cdot 12$ m.m.,
 K frequently with one or more longitudinal plications, and occasional with a few transverse terminal ones.

Syn.—*Pertusaria pilulifera Pers*, *Variolaria carnea Tayl.*

Hab.—Mt. Perry.

** *Pertusæ*. (a). *Flavescentes*.

Verrucæ subglobose, turgid, base constricted, more or less unequally gibbose-torquate, sparsely impresso-ostiolate.

2. *P. thiospoda*, *C. K.*

Thallus continuous, smoother than usual in the genus, from sulphurous to glaucous, gonidia large. Apothecia enclosed within small verrucæ, which are $\cdot 5$ — 1 m.m. in diameter; rarely confluent, convex or hemispherical-diformate, single-fruited, not sorediate; ostiola punctiform, often fleshy papillate, finally opened. Spores in oblong asci, solitary or gemmate, large, ellipsoid, grumous, lutescent, normally 3-limbate, central stratum thick, $\cdot 095$ x $\cdot 038$ m.m. C.
 K Knight, *Lich. N.S.W.*, *Trans. Lin. Soc.*, Dec. 1882.

Hab.—Mt. Perry, on bark.

(b) *Albidæ*.

3. *P. pertusella*, *Mull. Arg.*

Thallus with fruit-bearing verrucæ leaden white, smoothish, somewhat thin, shining; verrucæ crowded, rather turgid, globose-hemispherical, smallish, many nucleate, with many black ostiola, which are depressed, from minute punctiform to broadish; spores geminate, $\cdot 1$ — $\cdot 11$ x $\cdot 03$ m.m., not costate within.
 M

Lich. Beit. von Dr. J. Müller, Sep.—*Ab. aus. Flora*, XIX. 8.

Hab.—Toowoomba.

4. *P. petrophyes*, *C. K.*

Thallus a faded white, with the matrix occasionally laid bare. Apothecia enclosed in thalline verrucæ, which are crowded together (width 2—3 m.m.) subglobose-diformate, base inflexed, many fruited, lacunose-unequal, often albo-farinaceous, then constantly sterile; ostiola minute;

- K hymenium colourless, paraphyses very slender, capillary, flocculose-ramulose. Spores in elongate-cylindrical asci, 8, uniseriate, sometimes at both ends truncate, 3-limbate, central stratum thick, ellipsoid, lutescent, grumous, $\cdot 085 \times \cdot 034$ m.m.

Hab.—On rocks, Mt. Perry and Brisbane valley.

C. Knight, *Trans. Lin. Soc.*, Dec. 1882.

*** *Pustulatæ*—(a). *Flavescentes*.

Verrucæ hemispherical, apices not depressed, ostiola broad, widely confluent. subemergent.

P. pustulata, *Duby*.

Thallus yellowish or grey or greyish-olive, smooth, thin, effuse, continuous or rimose. Verrucæ scattered. small, convex, hemispherical; ostiola dark-brown, punctiform,

- M confluent, aggregated, very slightly depressed; spores geminate, colourless, ellipsoid, simple, resembling those of *P. thiospoda*, costulate within, $\cdot 095 \times \cdot 038$ m.m.

Hab —Toowoomba, on bark.

6. *P. leiotera*, *Mull. Arg.*

Thallus virescenti-flavid, thin, continuous, with smooth polished surfaces, at length obsoletely granulose-unequal; verrucæ $\cdot 7$ —1 m.m. wide, commonly with transverse branch-

- M lets distinctly longer than wide, others hemispherical with truncate obtuse vertices, base gradually rising from the thallus, pallid or fuscous, 1—3 ostiolate; ostioles somewhat confluent and rimiform; spores 2, $\cdot 11 \times \cdot 035$ m.m., within costulate. Nearly agreeing with *P. melaleuca*, but thallus intensely flavicant, with verrucæ strikingly smooth,

and in form and colour diverse. Lich. Beit. von Dr. J. Muller, XIX. 10.

Hab.—Rockhampton, on bark.

7. *P. lutescens*, *Krph.*

Thallus lutescent, bordered by a fine obscure line; verrucæ

- M numerous, small, crowded and often confluent; ostiola punctiform, black, 2—4 in each verruca. Spores 2, $\cdot 08$ — $\cdot 132 \times \cdot 036$ — $\cdot 066$ m.m.; endospore transversely plicate, often in the middle longitudinally fissured.

Hab.—Rockhampton.

(b). *Albidæ.*

8. *P. soredata*, *C. K.*

Thallus white or grey, at times with faint greenish tinge, seldom more than 4 m.m. thick, with surface closely and evenly rimose-areolate. Verrucæ hemispherical, to 1·5 m.m., with sorediferous summits, showing a coarsely granular formation. Sterile.

- K *Hab.*—In patches frequently 3—4 ft. wide, on rocks, near Brisbane.

* * * *Depressæ.*

Fruit bearing verrucæ hemispherical, with apex at length depresso-concave, in the depression crowdedly or sub-confluently ostioligerous.

Albidæ.

9. *P. melaleuca*, *Duby.*

Thallus yellowish cream colour, thin, membranaceous, sub-determinate, smoothish; verrucæ scattered, hemispherico-depressed, irregular, polycarpous; ostiola brownish-black, pseudo-disciform, depressed, thalline margin lacerate; spores

- M 2, colourless, ellipsoid, simple, $\cdot 045$ — $\cdot 08$ m.m. long,

This plant normally in parts or wholly pallido-flavescent, by decortication changes to white, and falls away like farina. Lich. Beit. v. Dr. J. M., XIX. 11.

Hab.—On bark, near Rockhampton.

10. *P. gibberosa*, *Mull. Arg.*

Thallus effuse, thin, here and there evanescent, continuous and smooth, milk-white; verrucæ concolorous with the thallus, depressed-hemispherical, 1—1½ m.m. wide, younger forms with base effuse, at length the same sub-contracted, at contact with thallus 3—5 gastrico-gibbose, in the centre of the apex with a few, or very few, close, at length sub-confluent, black ostiola; spores 8, .03—·035 x .014—·017 m.m., 1-seriate, not costate. Near *P. leioplaca*, but spores smaller, and verrucæ peculiarly gibbose-polygastric.

* * * *Leioplacæ*.
* * *

Verrucæ hemispherical or subglobose, base various, apex obtuse or deplanate (not depresso-concave) variously sparingly (not confluent) ostioligerous; ostiola not depressed.

(a) *Albidæ*.

11. *P. leioplaca*, *Ach.*

Thallus glauco-cinereous, somewhat thin, smooth, membranaceous, determinate; verrucæ turgido-subglobose, smooth, distinctly constricted, scattered, rimose-fissured, large; vertex rotundate-obtuse or slightly deplanate; apothecia Sn. solitary; ostiola brownish-black, punctiform, slightly depressed; spores 3—4—6, colourless, ellipsoid, simple, not costate, .06—·09 x .035—·045 m.m.; hym. gel. with iodine cærulescent.

Hab.—Common on bark.

12. *P. leioplacoides*, *Mull. Arg.*

Similar to *P. leioplaca Ach.* in the smooth thallus, but the verrucæ smaller, 1—1½ m.m. wide, hemispherical, whitish and shining, apex at length truncate-obtuse or vertex slightly depressed or deplanate; ostiola whitish 2—5, not prominent or finally mamillari-prominent, somewhat crowded together, especially near the vertex; spores 4 (often M 2 or 3), .0—·12 x .03—038 m.m. or larger, varying very considerably in size in the same apothecium, endospore within

prominently about 25-costate. Distinguished from *P. leioplaca* by the whitish ostiola and by the structure of the endospore. Lich. Beit. v. Dr. J. M. XIX 15.

13. *P. trypetheliiformis*, *Nyl.*

Thallus cinereous, somewhat flavescent, thin, effuse, rugulose; verrucæ concolorous, scarcely mediocre, about 1 m.m., at the base clearly distinct from the thallus, hemispherical and often irregular, vertices sub-truncate; ostiola small, few, at first brown, then nigricant, not depressed, mammoso-emergent; spores 3—4, $\cdot 04$ — $\cdot 09 \times \cdot 022$ — $\cdot 045$ m.m.

M

Hab.—On bark near Toowoomba.

v. *Hartmanni*, *Mull. Arg.*

Thallus ashy, somewhat yellowish, thin, effuse, roughened; verrucæ concolorous, scarcely mediocre, hemispherical, and often irregular, with vertex sub-truncate, and ostiola few; spores 2, $\cdot 13$ — $\cdot 15 \times \cdot 04$ m.m. Outwardly like the type, but differs in the 2-spored asci and larger spores.

M

Hab.—Toowoomba, on bark.

Lich. Beit. v. Dr. J. M. XVI., 3.

14. *P. minuta*, *C.K.*

Thallus grey, thin, fissured, almost continuous, evenly spread over small twigs, verrucæ very small with smooth apices; between the verrucæ are small rugose points; ostiola black, not depressed, few punctate; spores 2, oblong-ellipsoid, marked transversely with striæ as in *P. communis*, but the markings more delicate, requiring high powers, $\cdot 06$ — $\cdot 08 \times \cdot 025$ m.m.; paraphyses very fine, branching, matted, brownish with iodine.

K

Hab.—Unrecorded.

(b). *Flavicantes.*

15. *P. porinella*, *Nyl.*

Thallus yellowish white or cinereo-flavescent, diffuse, leproso-crustaceous, granular, with determinate margin; verrucæ

Sn. smooth, rounded or lobed; ostiola brownish, irregular, approximating; thecæ broad, 2-spored, often constricted in the centre; spores 2-coated, oval-oblong, smooth within, $\cdot 09$ — $\cdot 12 \times \cdot 03$ — $\cdot 04$ m.m. Gonidia small.

Hab.—On bark, Bowen Park, Mt. Perry, &c.

16. *P. xanthoplaca*, *Mull. Arg.*

Thallus yellow, moderately thin, effuse, very rugulose, at length rimose, superficially freely sorediose-ulcerate; verrucæ $1\cdot 5$ m.m., hemispherical, with constricted base, obsoletely

M rotundate-gibbose, ostiola pallid, neither emergent nor depressed; spores 8, $\cdot 045$ — $\cdot 05 \times \cdot 025$ m.m., not costate within.

Hab.—On rocks Toowoomba.

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17. *P. leioplacella*, *Nyl.*

Thallus yellow-white, thinly crustaceous, very similar to *P. porinella*, but with smaller rugose points between the verrucæ, which are not lævigatae. Thecæ cylindrical, spores 8, uni-

Sn. seriate, spore coat thickish, not costate within, $\cdot 037 \times \cdot 02$ m.m.; paraphyses matted, not granular.

Hab.—On bark of trees, Hocking's Nursery.

18. *P. subflavens*, *Mull. Arg.*

Thallus flavicant; verrucæ hemispherical, apex obtuse not depresso-concave, ostiola not confluent or depressed; spores costulate within.

M *Hab.*—Corticolous.

* * * Irregulares.
* * *

Verrucæ small, irregularly confluent, more or less sparingly punctiform-ostiolate, ostiola not at all immerso-depressed.

19. *P. leucostigma*, *Mull. Arg.*

Thallus scattered over with sordid-whitish, small, punctulate, mamillari-prominent verrucæ, glauco-cinereous, rugulose-unequal, margins argillaceo-pallid, faintly bordered by a

zonal line ; verrucæ to 1—5 m.m., nano-hemispherical, broadly deplanate-obtuse ; base not distinctly circumscribed, smooth, and concolorous with the thallus, subirregularly confluent, 1—3 fruited, 1—3 ostiolate ; ostiola often united in one, here and there 2—3 approximating, not depressed, brown, minutely punctiform, at length perforate-aperient, and girdled by white thalline areolæ ; spores 7—8, below 2-seriate, $\cdot 09$ — $\cdot 105$ x $\cdot 03$ — $\cdot 038$ m.m., not costulate. Lich. Beit. XIX. 33.

Hab.—Cunningham's Gap.

* * * * Polycarpicæ.
* * * *

Verrucæ irregular, deplanate, often but slightly emergent, commonly many fruited, and multiostiolate ; ostiola foveolate depressed.

20. *P. dermatodes*, *Nyl.*

As above. In old forms the ostioles are never delapso-concave or urceolate as in *P. leucodes* *C. K.*, which also

M differs in possessing black ostioles.

Hab.—Daintree River, Pentzke.
